approximately eighty turns. This helped some, but the upper magnet was still not strong enough. Since the lower magnet was doing all right, I decided the difference between the upper and lower magnets must be due to voltage drop. At the time I was using number eighteen bell wire to connect the magnets, the same wire used in winding them. I substituted for this bell wire, lamp cord and used both strands in parallel as one conductor. This solved the problem, for there was no discernible difference between the magnets after the change.

I have calculated the duration of auditory impression of my ear and found it to be .103 second. This was the mean of three trials. This period must undoubtedly vary with different people.

I think further research could be done on the effect of frequency on the duration of auditory impression.

ELECTROPHORESIS IN STABILIZED MEDIA[1]

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In the last few years several new separation techniques have been introduced in organic and inorganic chemistry. Among these has been the development of electrophoresis as a research tool.

Lodge is credited with the first attempt (1886) to measure ionic velocities in a tube filled with jelly containing an indicator. Migration was observed at the color change boundary. The observation of moving boundaries was converted into an analytical method by Tiselius in 1925.

In the past, two general methods have been available for studying the electrophoretic behavior of charged particles in a liquid. The microscope, which depends on direct observation of the motion of the particles with a microscope, is adapted to the study of mobilities of fairly large particles. In the moving-boundary method the displacement of the particles is an electric field is recorded as the movement of a boundary between a dispersed phase and the dispersion medium.

During the last few years a third method of achieving electrophoretic separations and of determining electrophoretic mobilities has come to the fore. This technique depends on the electromigration of charged particles, either ions or colloidally dispersed substances, through conducting solutions which have been stabilized with agar, gelatin, filter paper, cloth, and other materials. The extent of movement is determined by such procedures as developing colored derivatives, incorporating ra-

[1]The project described in this paper was exhibited at the meetings of the Junior Academy of Science in Murfreesboro, November, 1956, and was the project winning first prize for boys.

dioactive tracers, or by determining changes in other physical properties of the stabilized media.

There are several types of apparatus and procedures that can be used in the study of electrophoretic behaviors. In developing my apparatus I have incorporated features from several designs. However, the apparatus is primarily a horizontal closed system adapted from an apparatus by McDonald. In this apparatus the paper or cloth medium is sandwiched between glass and placed in a removable non-conducting frame. The ends of the medium dip into buffer vessels at each end of the frame and are in turn connected to the electrode vessels by mans of agar salt bridges. The entire apparatus is housed in a glass covered box which serves to retard evaporation and protects the operator from the high voltage potential.

The electrical potential provides a regulated and variable output voltage which can be held constant over wide load variations. The useful range of the voltage output is 150 to 500 volts under a maximum of 200 ma.

This apparatus is particularly suited for graphic experiments which involve simple ion migrations. It is adaptable for separation and fractionation experiments as well as some mobility determinations.

At the present this apparatus is being applied to a research project involving the extraction of amino acid from fossil material.

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A STUDY OF HYBRIDIZATION IN HAMSTERS[1]

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The Golden hamster is a rodent, very closely related genetically to the rat. The scientific name for the Golden hamster is *Cricetus auratus auratus.* The hamster originated in the aird desert regions of Syria. Today the hamster is extinct in its natural habitat. Noted for their tremendous ability as hoarders of grain, the hamsters were eradicated by the farmers of Syria. Before this happened, an English zoologist captured a pair of hamsters which later produced a litter of young. This litter was the origin of all the hamsters which are in captivity today.

[1] The project described in this paper was one of the prize-winning projects exhibited at the meetings of the Junior Academy of Science in Murfreesboro, November, 1956.